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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/570,482

10/17/2006

Hajime Kurita

5000-5303

2786

27123

7590

08/25/2009

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EXAMINER

GARCIA, FRANCIS Y

ART UNIT

PAPER NUMBER

3746

NOTIFICATION DATE

DELIVERY MODE

08/25/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Shopkins@Lockelord.com
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Office Action Summary	Application No. 10/570,482	Applicant(s) KURITA ET AL.	
	Examiner FRANCIS GARCIA	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/30/2007, 08/14/2006, 03/01/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 9 and 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (U.S 2001/0045158) in view of Sugioka et al. (U.S 2002/0067996).

Regarding claim 1, Shimizu discloses a swash plate compressor, comprising a drive shaft (7), a swash plate (6) coupled to the drive shaft to be rotatable integrally with the drive shaft, piston (10) coupled to the swash plate via shoes (11a,b), rotation of the drive shaft rotates the swash plate, which causes the pistons to reciprocate and

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compress gas, with varying inclination angles of the swash plate, the compressor being characterized by: and an inclined surface provided at part of the entire outer circumferential edge portion of the swash plate, but the compressor fails to have variable displacement and pistons. Sugioka has the teaching of compressor with variable displacement Fig 1a with pistons (17). Sugioka's piston 17 could be attached along with shoes to the other side of the swash plate 6. It would have been obvious to one of ordinary skill in the art to apply the teachings of variable displacement from Sugioka to Shimizu's compressor in order to give greater operating range to the compressor.

Regarding claim 2, Shimizu discloses a compressor, wherein part of the outer circumferential edge portion of the swash plate 6 corresponding to the piston located at the top dead center position is provided with the inclined surface on a salient corner opposite to the piston(See fig 3).

Regarding claim 3, Shimizu's as modified by Sugioka discloses a compressor, wherein part of the outer circumferential edge portion of the swash plate corresponding to the piston located at the bottom dead center position is provided with the inclined surface on a salient corner toward the piston (Refer to fig 3).

Regarding claim 7, Shimizu discloses a swash plate compressor, comprising a drive shaft (7), a swash plate (6) coupled to the drive shaft to be rotatable integrally with the drive shaft, piston (10) coupled to the swash plate via shoes (11a,b), rotation of the drive shaft rotates the swash plate, which causes the pistons to reciprocate and compress gas, with varying inclination angles of the swash plate, the compressor being

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characterized by: and an inclined surface provided at part of the entire outer circumferential edge portion of the swash plate, a first inclined surface provided at part of the outer circumferential edge portion of the swash plate corresponding to the piston located at the top dead center position on a salient corner opposite to the piston, but the compressor fails to have variable displacement and a second piston with a second inclined surface, located at the bottom dead center position on a salient corner toward the piston. Sugioka has the teaching of compressor with variable displacement Fig 1a with pistons (17). Sugioka's piston 17 could be attached along with shoes to the other side of the swash plate 6. It would have been obvious to one of ordinary skill in the art to apply the teachings of variable displacement from Sugioka to Shimizu's compressor in order to give greater operating range to the compressor.

3. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (U.S 2001/0045158) in view of Sugioka et al. (U.S 2002/0067996) in further view of Prior art submitted by applicant (figure 10).

Regarding claim 4, Shimizu's as modified by Sugioka discloses a compressor, wherein the swash plate includes a first swash plate, which is coupled to the drive shaft to be rotatable integrally with the drive shaft, but fails to and a second swash plate supported by the first swash plate, the pistons are coupled to the first and second swash plates via first shoes, which abut against the first swash plate, and second shoes, which abut against the second swash plate and receive a reaction force of compression, and part of the outer circumferential edge of the first swash plate

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corresponding to the piston located at the top dead center position is provided with the inclined surface on a salient corner opposite to the second swash plate. Prior art (Fig 10) discloses a swash plate compressor with a second swash plate 95. The second swash plate from the Prior art teachings can be applied to the compressor of Shimizu as modified by Sugioka. It would have been obvious to one of ordinary skill in the art to apply the teachings of a second swash plate from the Prior art to the compressor of Shimizu as modified by Sugioka in order to reduce the wear and tear of the shoes.

Regarding claim 5, Shimizu's as modified by Sugioka in further view of Prior Art discloses a compressor, wherein part of the outer circumferential edge portion of the first swash plate corresponding to the piston located at the bottom dead center position is provided with the inclined surface on a salient corner toward the second swash plate.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (U.S 2001/0045158) in view of Sugioka et al. (U.S 2002/0067996) in view of Prior art submitted by applicant (figure 10) in further view of Kanai et al (U.S 6, 095, 761).

Regarding claim 6, Shimizu discloses the compressor mentioned above, wherein the gas is refrigerant used in a refrigeration circuit, but fails to use carbon dioxide as the refrigerant. Kanai has the teachings of a compressor using carbon dioxide. It would be obvious to one of ordinary skill in the art to apply the teaching of carbon dioxide from Kanai to Shimizu's compressor in order to increase the capacity of the compressor.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited for disclosing related limitation of the applicant's claimed and disclosed invention: **Pawelski et al (U.S 2003/0165389); Tabuchi et al. (U.S. 2004/0165993); Sugiura et al. (U.S 2002/0159895)**. Pawelski, Tabuchi and Sugiura disclose variable displacement compressor with features relevant to claims filed by applicant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANCIS GARCIA whose telephone number is (571)270-7105. The examiner can normally be reached on Monday thru Friday 9-5 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571)272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles G Freay/
Primary Examiner, Art Unit 3746

/FRANCIS GARCIA/
Examiner, Art Unit 3746